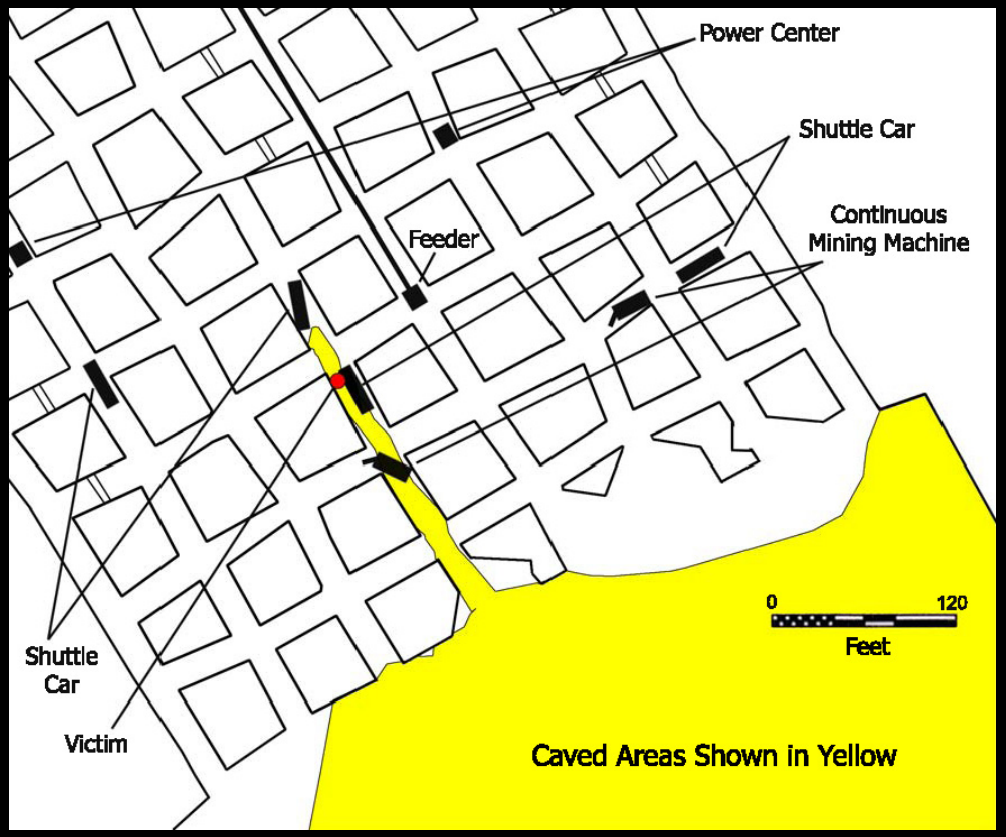
*This presentation is for illustrative and **general** educational purposes only and is not intended to substitute for the official MSHA Investigation Report analysis nor is it intended to provide the sole foundation, if any, for any related enforcement actions.*

GENERAL INFORMATION

Coal Mine Fatal Accident 2004-13

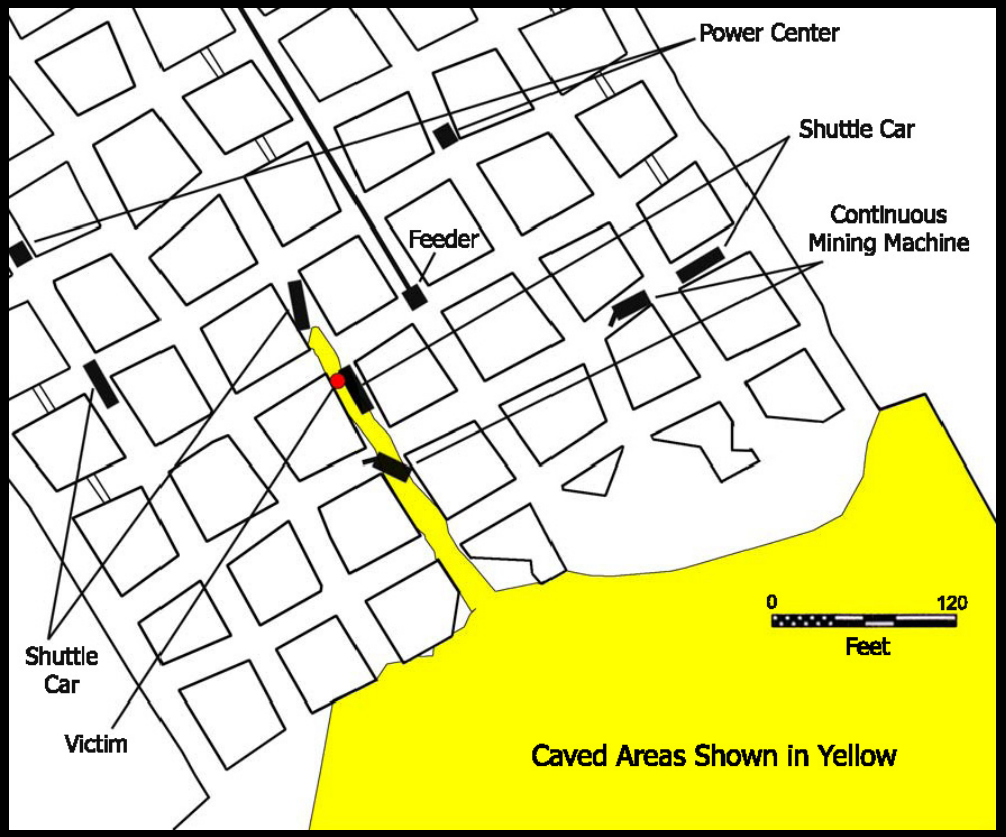
Operator:	Bell County Coal Corporation
Mine:	Coal Creek Mine
Accident Date:	June 16, 2004
Classification:	Fall of Roof
Location:	District 7, Bell County, KY
Mine Type:	Underground
Employment:	44
Production	4,000 Tons/Day

ACCIDENT DESCRIPTION



While retreat mining in the pillar block located along the left side of the No. 5 entry, the mine roof started working in the worked out area and the continuous mining machine was backed outby approximately 60 feet in the No. 5 entry. Crewmembers observed the mine roof working and the timbers taking weight while the victim, shuttle car operator/timberman, was recording the activities with his personal digital video camera.

ACCIDENT DESCRIPTION



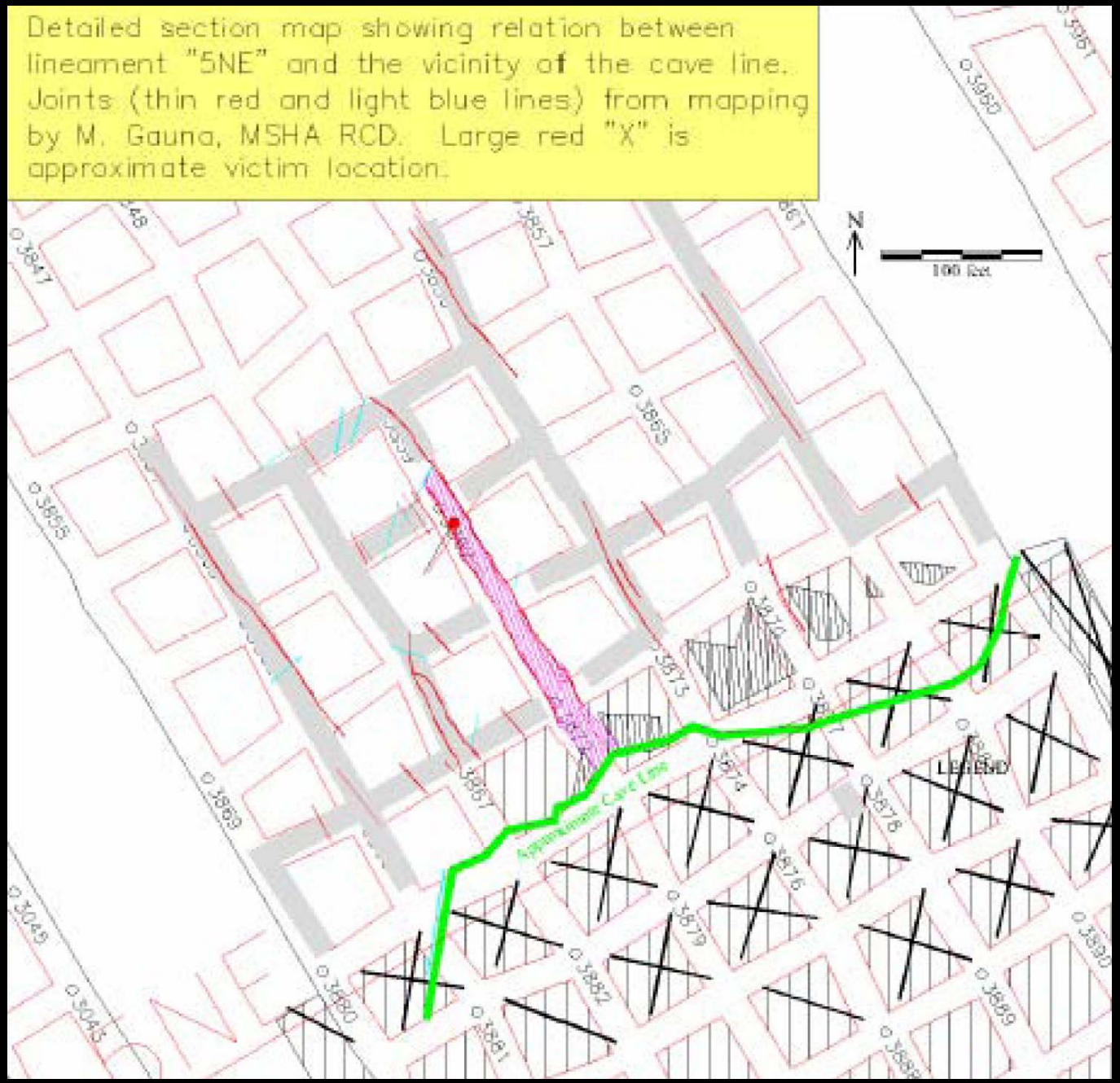
It was observed that the mine roof was working along the No. 5 entry outby the active pillar line and a roof fall was imminent. As the continuous mining machine operator began moving the machine from the No. 5 entry into the connecting crosscut toward the No. 6 entry, the victim ran in an outby direction in an attempt to escape. The roof fall began in the worked out area and extended outby in the No. 5 entry for approximately 210 feet, trapping the victim under the fallen material.

CONCLUSION

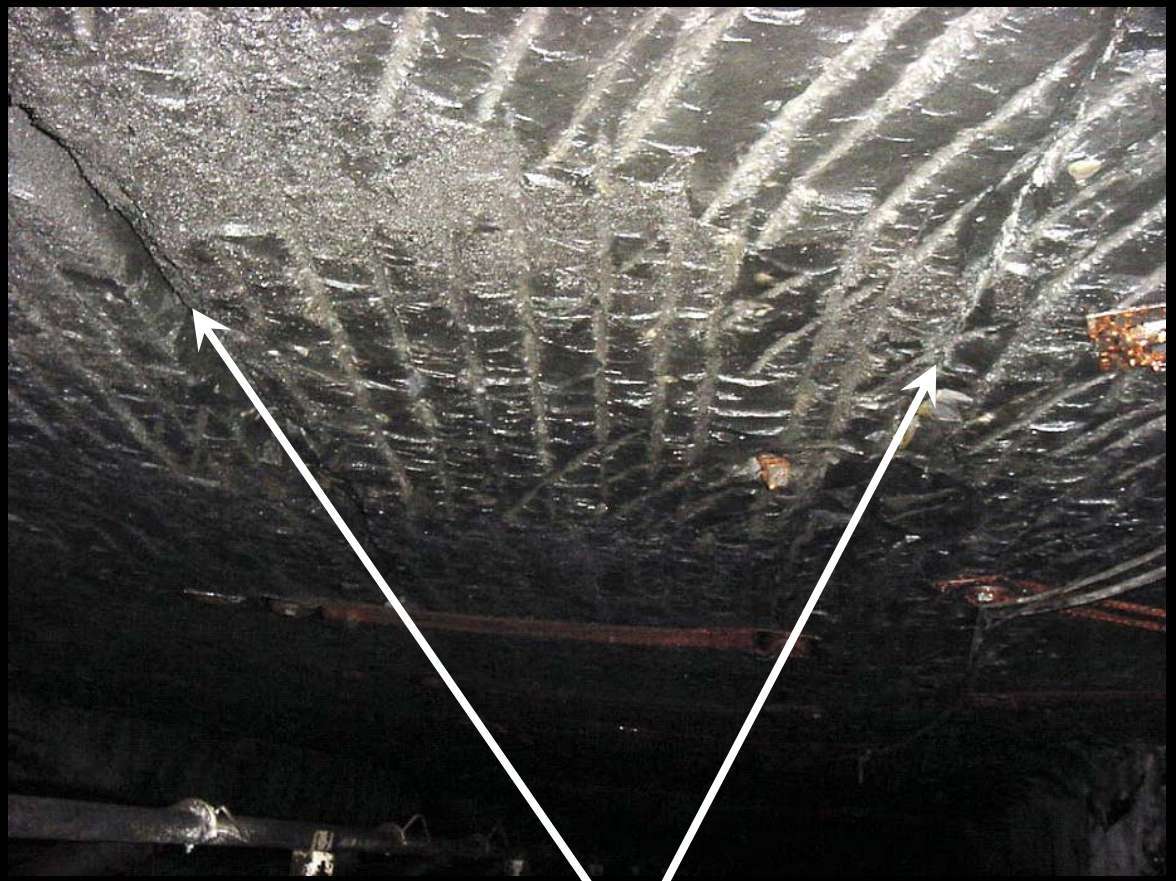
Photo shows one of the joints in the No. 5 entry, at the outby end of the roof fall.

The accident occurred because hazardous roof conditions on the working section were not corrected.

Two large vertical joints (hillseams) running parallel to both ribs were present in the No.5 entry. The parallel joints allowed the roof fall to initiate near the pillar line and propagate outby in the No. 5 entry.


Detailed section map showing relation between lineament "5NE" and the vicinity of the cave line. Joints (thin red and light blue lines) from mapping by M. Gauna, MSHA RCD. Large red "X" is approximate victim location.
N
100 feet
LEGEND
Approximate Cave Line
NE

View of open joint in #6 entry, in Crosscut 13, adjacent to fall.



View of parallel joints, approximately 3 feet apart, in intersection of Belt Entry and Crosscut 9, two crosscuts outby feeder.

ROOT CAUSE ANALYSIS

Causal Factor: The standards, policies, and administrative controls in use at the mine did not ensure that the roof was supported or adequately controlled to protect persons from the hazards associated with falls of roof. Hillseams were present in various locations on the 004/003 MMU and extended outby (See Appendix B). During initial development, these hillseams were present but were not supported according to the operators approved roof control plan.

Corrective Actions: The operator ceased retreat mining. A revision of the approved roof control should address the use of additional and/or additional types of support, in addition to those currently detailed in the minimum provisions of the approved roof control plan, and/or the exclusion of certain areas from pillar extraction. Mine management should assure that their approved plans are being continually complied with. The operator should implement a policy to conduct continuing education in risk/hazard assessment and areas concerning mine plans and changing conditions.

ROOT CAUSE ANALYSIS

Causal Factor: The preshift examination of roof conditions on the 004/003 MMU was deficient in that the examiner for the oncoming second shift failed to recognize the presence of hillseams as a hazardous roof condition so that corrective measures could be initiated. The roof cracks across the section were numerous and extensive in nature. A review of the pre-shift examination record books did not contain any comments or indication of the presence of any adverse roof conditions. An adequate examination would have recognized the hillseams as a hazardous condition for the pillar extraction scheduled in the area. Identification of these conditions during the examination should have prompted the installation of additional roof support or abandonment of the area that was being mined.

Corrective Actions: The certified persons making the examinations should properly identify and record all hazardous conditions and make the appropriate corrections. Mine management should develop and follow procedures to identify and correct any and all hazardous conditions.

ROOT CAUSE ANALYSIS

Causal Factor: The examinations conducted during the second shift, prior to the accident, of the roof conditions on the 004/003 MMU were deficient in that observed hazardous roof conditions were not corrected. The hillseams across the section were numerous and extensive in nature. The section foreman acknowledged the presence of hillseams, but took no corrective action, to eliminate these hazardous roof conditions. Identification of these conditions during the examination should have prompted the installation of additional roof support or abandonment of the area that was being mined.

Corrective Actions: The certified persons making the examinations should properly identify, make the appropriate corrections, and record all hazardous conditions. Mine management should develop and follow procedures to identify and correct any and all hazardous conditions.

ENFORCEMENT ACTIONS

104(a) Citation was issued for a violation of 30 CFR 75. 360(b)(3).

An investigation of the fatal fall of roof accident, which occurred on June 16, 2004, determined that the pre-shift examiner failed to properly examine the 004/003 MMU super-section. Hillseams (vertical open joints) were present at various locations on the 004/003 MMU that were not adequately supported as required in the approved Roof Control Plan, dated June 6, 2001. The extensiveness of these hillseams should have prompted identification of these as being hazardous roof conditions and corrective actions should have been taken. Due to the hazards associated with mining and specifically with pillar mining. Measures should have been implemented to adequately support the mine roof to correct the hazardous conditions or the area should have been dangered off and the section pulled back. The pre-shift record book did not contain any entries identifying the roof cracks or adverse roof conditions.

ENFORCEMENT ACTIONS

104(a) Citation was issued for a violation of 30 CFR 75. 363(a).

An investigation of the fatal fall of roof accident, which occurred on June 16, 2004, determined that a hazardous roof condition identified by the second shift section foreman was not posted with a conspicuous danger sign where anyone entering the area would pass and the hazardous condition was not corrected. The section foreman stated during an interview that while he was making his safety checks of the 004/003 MMU, he observed hillseams in the No. 4 and No. 5 entries outby the active pillar line. He stated he observed one hillseam in the No. 5 entry, located on the left side, two crosscuts long, and which widened out in the crosscut outby the active pillar row.

BEST PRACTICES

- Install supplemental support when hillseams or abnormal geological conditions are encountered.
- Conduct a thorough visual examination of the roof, face, and ribs immediately before any work is performed and thereafter as conditions warrant.
- Know and follow the approved pillaring procedures in the roof control plan.
- Train all miners in proper escape and evacuation procedures during retreat mining.
- Be alert for changing roof conditions.
- Inspect test holes regularly for changes in roof strata.